WHAT IS CLAIMED IS:

1. An apparatus for receiving a non-coherent layered modulation signal, comprising:

a tuner for receiving a layered signal and producing a layered in-phase signal and a layered quadrature signal therefrom;

an analog-to-digital converter for digitizing the layered in-phase signal and the layered quadrature signal; and

a processor for decoding the layered in-phase signal and the layered quadrature signal to produce one or more discrete layer signals.

2. The apparatus of Claim 1, wherein the processor comprises a logic circuit.

3. The apparatus of Claim 1, further comprising one or more decoders, each receiving and decoding one of the one or more discrete layer signals to be displayed.

4. The apparatus of Claim 1, wherein decoding by the processor performs frequency acquisition on the layered quadrature signal.

5. The apparatus of Claim 1, wherein decoding by the processor match filters the layered in-phase signal and the layered quadrature signal.

6. The apparatus of Claim 1, wherein the processor demodulates and decodes an upper layer signal from the layered in-phase signal and the layered quadrature signal to produce an upper one of the one or more discrete layer signals.

7. The apparatus of Claim 6, wherein the processor produces an ideal upper layer signal including an ideal in-phase upper layer signal and an ideal quadrature upper layer signal from the decoded upper layer signal and subtracts the ideal in-phase upper layer signal and the ideal quadrature upper layer signal from the layered in-phase signal and the layered quadrature signal, respectively, to produce a lower layer in-phase signal and a lower layer quadrature signal of a lower one of the one or more discrete layer signals.

8. The apparatus of Claim 7, wherein the processor demodulates and decodes the lower layer in-phase signal and the lower layer quadrature signal to produce the lower one of the one or more discrete layer signals.

9. The apparatus of Claim 7, wherein the processor match filters the lower layer in-phase signal and the lower layer quadrature signal.

10. The apparatus of Claim 7, wherein the layered in-phase signal and the layered quadrature signal are delayed to synchronize the subtraction.

11. The apparatus of Claim 10, wherein delaying the layered in-phase signal and the layered quadrature signal are delayed by correlating to the ideal in-phase upper layer signal and the ideal quadrature upper layer signal.

12. The apparatus of Claim 7, wherein producing the ideal upper layer signal comprises signal processing the ideal in-phase upper layer signal and the ideal quadrature upper layer signal.

13. The apparatus of Claim 12, wherein signal processing the ideal in-phase upper layer signal and the ideal quadrature upper layer signal comprises finite impulse response matched filtering the ideal in-phase upper layer signal and the ideal quadrature upper layer signal.

14. The apparatus of Claim 12, wherein signal processing the ideal in-phase upper layer signal and the ideal quadrature upper layer signal comprises applying a signal map to the ideal in-phase upper layer signal and the ideal quadrature upper layer signal, the signal map accounting for transmission distortions of the layered signal.

15. The apparatus of Claim 12, wherein signal processing the ideal in-phase upper layer signal and the ideal quadrature upper layer signal comprises amplitude and phase matching the ideal in-phase upper layer signal and the ideal quadrature upper layer signal with the layered in-phase signal and the layered quadrature signal, respectively.

16. A processor for decoding a layered signal into separate signal layers, comprising:

a first demodulator and first decoder for decoding an upper layer signal from the layered signal and providing the decoded upper layer signal at a first output;

an encoder for generating an ideal upper layer signal from the decoded upper layer signal;

a signal processor for modifying the ideal upper layer signal to characterize transmission and processing effects;

a subtractor for subtracting the modified ideal upper layer signal from the layered signal to produce a lower layer signal; and

a second demodulator and second decoder for decoding the lower layer signal and providing the decoded lower layer signal at a second output.

17. The processor of Claim 16, further comprising a delay function correlated to an output of the signal processor to appropriately delay the layered signal to synchronize amplitude and phase matching of the modified ideal upper layer signal and the layered signal.

18. The processor of Claim 16, further comprising a delay function correlated to an output of the signal processor to appropriately delay the layered signal to synchronize subtraction of the modified ideal upper layer signal and the layered signal.

19. The processor of Claim 16, wherein the signal processor performs finite impulse response matched filtering on the ideal upper layer signal.

20. The processor of Claim 16, wherein the signal processor performs finite impulse response matched filtering on the delayed layered signal.

21. The processor of Claim 16, wherein the signal processor applies a signal map to the ideal upper layer signal.

22. The processor of Claim 16, wherein the signal processor amplitude and phase matches the ideal upper layer signal with the layered signal.

23. A method of decoding a non-coherent layered modulation signal, comprising the steps of:

receiving a layered signal and producing a layered in-phase signal and a layered quadrature signal therefrom;

digitizing the layered in-phase signal and the layered quadrature signal; and

decoding the digitized layered in-phase signal and the layered quadrature signal to produce one or more discrete layer signals.

24. The method of Claim 23, wherein the step of decoding is performed by a logic circuit.

25. The method of Claim 23, wherein the step of decoding includes frequency acquisition on the layered quadrature signal.

26. The method of Claim 23, further comprising receiving and decoding each of the one or more discrete layer signals to be displayed.

27. The method of Claim 23, wherein the step of decoding comprises matched filtering the layered in-phase signal and the layered quadrature signal.

28. The method of Claim 23, wherein the step of decoding comprises demodulating and decoding an upper layer signal from the layered in-phase signal and the layered quadrature signal to produce an upper one of the one or more discrete layer signals.

29. The method of Claim 28, wherein the step of decoding comprises producing an ideal upper layer signal including an ideal in-phase upper layer signal and an ideal quadrature upper layer signal from the decoded upper layer signal and subtracting the ideal in-phase upper layer signal and the ideal quadrature upper layer signal from the layered in-phase signal and the layered quadrature signal, respectively, to produce a lower layer in-phase signal and a lower layer quadrature signal of a lower one of the one or more discrete layer signals.

30. The method of Claim 29, wherein the step of decoding comprises demodulating and decoding the lower layer in-phase signal and the lower layer quadrature signal to produce the lower one of the one or more discrete layer signals.

31. The method of Claim 29, wherein the step of decoding comprises match filtering the lower layer in-phase signal and the lower layer quadrature signal.

32. The method of Claim 29, wherein the step of decoding comprises delaying the layered in-phase signal and the layered quadrature signal to synchronize the subtraction.

33. The method of Claim 32, wherein delaying comprises correlating the layered in-phase signal and the layered quadrature signal are delayed by to the ideal in-phase upper layer signal and the ideal quadrature upper layer signal.

34. The method of Claim 29, wherein producing the ideal upper layer signal comprises signal processing the ideal in-phase upper layer signal and the ideal quadrature upper layer signal.

35. The method of Claim 34, wherein signal processing the ideal in-phase upper layer signal and the ideal quadrature upper layer signal comprises pulse shaping the ideal in-phase upper layer signal and the ideal quadrature upper layer signal.

36. The method of Claim 34, wherein signal processing the ideal in-phase upper layer signal and the ideal quadrature upper layer signal comprises applying a signal map to the ideal in-phase upper layer signal and the ideal quadrature upper layer signal, the signal map accounting for transmission distortions of the layered signal.

37. The method of Claim 34, wherein signal processing the ideal in-phase upper layer signal and the ideal quadrature upper layer signal comprises amplitude and phase matching the ideal in-phase upper layer signal and the ideal quadrature upper layer signal with the layered in-phase signal and the layered quadrature signal, respectively.